



## University of Stuttgart

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### Research Context

- Modern software engineering paradigms and technologies – such as DevOps and microservices – are gaining more and more attraction
- Established QoS evaluation (e.g., performance and reliability) for „classic“ paradigms and technologies exist
- Challenges and lack of adoption for DevOps and microservices
- Our scope: load testing

### Project Goals and Activities

- Using BenchFlow for load testing of microservices
- Automatic extraction and evolution of load test specifications from APM Data
- Efficient performance testing of microservices

### Use of SOC Lab Resources

- BenchFlow load testing setup on top of Rancher/Docker
- Experimental evaluation of microservice deployment alternatives

### Next Steps

#### DevOps-oriented declarative load testing for microservices

- Declarative load testing
- Detection of performance regressions based on load tests
- Prioritization and selection of load tests
- Advanced extraction of load test specifications from APM data
- Additional Case studies

### Contact

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## Continuous Performance Testing for Microservices

*HPI Future SOC Lab Day  
(Spring 2018)*

### Selected References

- A. Brunnert et al. *Performance-oriented DevOps: A research agenda*. Tech. Rep. SPEC-RG-2015-01
- R. Heinrich et al. *Performance engineering for microservices: Research challenges and directions*. In Proc. ICPE 2017. ACM
- V. Ferme and C. Pautasso. *A declarative approach for performance tests execution in continuous software development environments*. In Proc. ICPE 2018. ACM
- H. Schulz, T. Angerstein, A. van Hoorn. *Towards automating representative load testing in Proc. LTB@ICPE 2018*. ACM